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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/780,859  | 02/19/2004  | Hironori Endo        | Q79906              | 1971             |
| 23373   | 7590        | 09/23/2005           | EXAMINER            |                  |
| SUGHRUE MION, PLLC<br>2100 PENNSYLVANIA AVENUE, N.W.<br>SUITE 800<br>WASHINGTON, DC 20037 |             |                      | HUFFMAN, JULIAN D   |                  |
|   |             |                      | ART UNIT            | PAPER NUMBER     |
|   |             |                      | 2853                |                  |

DATE MAILED: 09/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                               |                                |  |
|------------------------------|-------------------------------|--------------------------------|--|
| <b>Office Action Summary</b> | Application No.<br>10/780,859 | Applicant(s)<br>ENDO, HIRONORI |  |
|                              | Examiner<br>Julian D. Huffman | Art Unit<br>2853               |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 15 July 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 12-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 12-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☒ Certified copies of the priority documents have been received in Application No. 10/370,070.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1 July 2005 has been entered.

### ***Claim Objections***

2. Claims 12-20 are objected to because of the following informalities:

In claims 12 and 17-20, the language "each dot that makes up said correction pattern is a different size" is indefinite. The term "different" is a relative term and the claim language does not provide a frame of reference for interpretation. The claim language should state that each dot that makes up the correction pattern is a different size from the dots that make up the first correction pattern, or the other dots that make up the second correction pattern.

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 12-15, 17, 19 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Fujimori (2001/0030671 A1).

Fujimori discloses:

With regards to claims 12, 17 and 20, a computer system (fig. 1) comprising:

a computer main unit (fig. 1, PC); and

a printing apparatus (fig. 1, PRT, fig. 3), connected to said computer main unit, (via CB) and comprising:

an ejection head (fig. 3, elements 61-66, 0095) moving in a first direction (carriage moves during printing), said ejection head having a plurality of nozzles (fig. 4, Nz) provided along a second direction which is different from said first direction (fig. 4, nozzles are arranged in the subscanning direction, while head is scanned in the main scanning direction), said nozzle selectively ejecting ink droplets of a plurality of sizes to form dots on a printing medium (0010, figs. 19 and 32, large, medium and small dots);

wherein

said printing apparatus prints a first correction pattern and a second correction pattern, said first correction pattern and said second correction pattern enabling correction of a misalignment between a position at which dots are formed during a

forward pass through which said head is moved and a position at which dots are formed during a return pass through which said head is moved (fig. 15, a first correction pattern is printed, subsequent correction patterns are printed, as shown in fig. 19 and described in 0134-0139, for different sized dots);

said first correction pattern and said second correction pattern are made of dots arranged in said first direction and said second direction (fig. 15),

each dot that makes up said first correction pattern is a certain size (fig. 15) ;

each dot that makes up said second correction pattern is a different size (fig. 19, the test pattern shown in fig. 15 is an example of a test pattern where the dots are all large dots, equal in size, Fujimori further teaches printing subsequent patterns with medium and small sized dots, see 0138);

a distance between the centers of neighboring dots arranged along said first direction of said first correction pattern and a distance between the centers of neighboring dots arranged along said first direction of said second correction pattern are a predetermined distance (0122, dots are printed so as to adjoin one another when properly aligned so as to “enable the positional misalignment of dots to be detected with high accuracy”, or dots are printed so as to be misaligned by precise amounts depending on the timing at which they are printed, in either case, the distance is a predetermined distance and the distance between dots is a predetermined distance of 0 dots for the most aligned test pattern), and

a distance between the centers of neighboring dots arranged along said second direction of said first correction pattern is different from a distance between the centers of neighboring dots arranged along said second direction of said second correction pattern (since the dots are printed so as to be adjoining when aligned, and a first correction pattern having first sized dots is printed and a second correction pattern having different sized dots is printed, the dots will be separated by different distances);

wherein said printing apparatus is capable of:

receiving command information from a user based on said first correction pattern and said second correction pattern (0123); and

correcting said misalignment based on the command information (0123).

With regards to claim 13, said first correction pattern and said second correction pattern each have a plurality of sub-patterns (fig. 15, each sub-pattern is numbered 1-5), and

each sub-pattern is made of dots arranged in said first direction and said second direction (fig. 15).

With regards to claim 14, each said sub-pattern has forward-pass dots that are formed with a predetermined distance in said first direction there-between during said forward pass and return-pass dots that are formed with a predetermined distance in said first direction there-between during said return pass, and

an amount of misalignment between a position at which the forward-pass dots are formed and a position at which the return-pass dots are formed is different for each sub-pattern (figs. 15 and 22).

With regards to claim 15, a printing apparatus according to claim 14, wherein the predetermined distance is at least twice the spacing in said second direction between the dots of said sub-pattern (referring to claim 14, the distance in the first direction between forward pass dots or return pass dots is twice the distance between the dots of the sub-pattern).

With regards to claim 19, Fujimori discloses a correction pattern comprising:

a first correction pattern (fig. 15), and

a second correction pattern (fig. 19, different combinations of patterns are printed),

wherein said first correction pattern and said second correction pattern have forward-pass dots and return-pass dots (fig. 15),

said forward pass dots are formed by an ejection head (fig. 3, elements 61-66) during a forward pass through which said head is moved, said ejection head being movable in a first direction, said ejection head having a plurality of nozzles (fig. 4, Nz) provided along a second direction which is different from said first direction, said nozzle selectively ejecting ink droplets of a plurality of sizes to form dots on a printing medium (fig. 32, 0010); and

said return-pass dots are formed by said ejection head during a return pass through which said head is moved (fig. 15);

each dot that makes up said first correction pattern is a certain size (fig. 15) ;

each dot that makes up said second correction pattern is a different size (fig. 19, the test pattern shown in fig. 15 is an example of a test pattern where the dots are all

large dots, equal in size, Fujimori further teaches printing subsequent patterns with medium and small sized dots, see 0138);

a distance between the centers of neighboring dots arranged along said first direction of said first correction pattern and a distance between the centers of neighboring dots arranged along said first direction of said second correction pattern are a predetermined distance (0122, dots are printed so as to adjoin one another when properly aligned so as to “enable the positional misalignment of dots to be detected with high accuracy”, or dots are printed so as to be misaligned by precise amounts depending on the timing at which they are printed, in either case, the distance is a predetermined distance and the distance between dots is a predetermined distance of 0 dots for the most aligned test pattern), and

a distance between the centers of neighboring dots arranged along said second direction of said first correction pattern is different from a distance between the centers of neighboring dots arranged along said second direction of said second correction pattern (since the dots are printed so as to be adjoining when aligned, and a first correction pattern having first sized dots is printed and a second correction pattern having different sized dots is printed, the dots will be separated by different distances).

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimori in view of Nishigori (JP 10-329381, cited by applicant, copy provided in parent application 10/370,070).

Fujimori discloses, with regards to claim 18:

a printing apparatus (fig. 1, PRT, fig. 3) comprising:

an ejection head (fig. 3, elements 61-66, 0095) moving in a first direction (carriage moves during printing), said ejection head having a plurality of nozzles (fig. 4, Nz) provided along a second direction which is different from said first direction, said nozzle selectively ejecting ink droplets of a plurality of sizes to form dots on a printing medium (figs. 19 and 32, large, medium and small dots);

wherein

said printing apparatus prints a first correction pattern and a second correction pattern, said first correction pattern and said second correction pattern enabling correction of a misalignment between a position at which dots are formed during a forward pass through which said head is moved and a position at which dots are formed during a return pass through which said head is moved (fig. 15, a first correction pattern is printed, subsequent correction patterns are printed, as shown in fig. 19 and described in 0134-0139, for different sized dots said first correction pattern and said second

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correction pattern are made of dots arranged in said first direction and said second direction),

each dot that makes up said first correction pattern is a certain size (fig. 15) ;

each dot that makes up said second correction pattern is a different size (fig. 19, the test pattern shown in fig. 15 is an example of a test pattern where the dots are all large dots, equal in size, Fujimori further teaches printing subsequent patterns with medium and small sized dots, see 0138);

a distance between the centers of neighboring dots arranged along said first direction of said first correction pattern and a distance between the centers of neighboring dots arranged along said first direction of said second correction pattern are a predetermined distance (0122, dots are printed so as to adjoin one another when properly aligned so as to "enable the positional misalignment of dots to be detected with high accuracy", or dots are printed so as to be misaligned by precise amounts depending on the timing at which they are printed, in either case, the distance is a predetermined distance and the distance between dots is a predetermined distance of 0 dots for the most aligned test pattern), and

a distance between the centers of neighboring dots arranged along said second direction of said first correction pattern is different from a distance between the centers of neighboring dots arranged along said second direction of said second correction pattern (since the dots are printed so as to be adjoining when aligned, and a first correction pattern having first sized dots is printed and a second correction pattern having different sized dots is printed, the dots will be separated by different distances);

said first correction pattern and said second correction pattern each have a plurality of sub-patterns (fig. 15, each sub-pattern is numbered 1-5);

each sub-pattern is made of dots arranged in said first direction and said second direction (fig. 15),

each said sub-pattern has forward-pass dots that are formed with a predetermined distance in said first direction there-between during said forward pass and return-pass dots that are formed with a predetermined distance in said first direction there-between during said return pass;

an amount of misalignment between a position at which the forward-pass dots are formed and a position at which the return-pass dots are formed is different for each sub-pattern (figs. 15 and 22); and

wherein the predetermined distance is at least twice the spacing in said second direction between the dots of said sub-pattern (referring to claim 14, the distance in the first direction between forward pass dots or return pass dots is twice the distance between the dots of the sub-pattern).

Fujimori discloses everything claimed, with the exception of a density detection member detecting a density of the sub-patterns to correct the misalignment.

Nishigori discloses a density detection member for detecting test patterns (fig. 4, abstract, section 009 of translation provided by applicant).

It would have been obvious to one having ordinary skill in the art at the time of the invention to incorporate the density detection member of Nishigori in the invention of Fujimori and to use the density detection member to correct the misalignment based on

the density detected for the purpose of providing an automatic adjustment which reduces a burden on a user.

### ***Response to Arguments***

7. Applicant's arguments filed 1 July 2005 have been considered and are not persuasive.

Applicant presented comments regarding cancelled claims, these comments were addressed in the advisory action and are additionally moot in view of the cancellation of these claims.

Applicant's arguments regarding pending claims 12-20 are addressed below.

Applicant's argument that Fujimori does not disclose "a distance between the centers of neighboring dots arranged along said first direction of said first correction pattern and a distance between the centers of neighboring dots arranged along said first direction of said second correction pattern are a predetermined distance" is noted. However, this argument is not found persuasive.

From the claim language, it is not clear if the distance between dots of the first correction pattern and the distance between dots of the second correction pattern is the same distance, or a different distance. It is only stated that the distances "are a predetermined distance". Since Fujimori prints dots specifically at an interval which places adjoining dots on the recording medium in the process of printing the test pattern, Fujimori prints dots separated by a predetermined distance and thus satisfies the claim language.

Applicant's argument that Fujimori does not disclose "a distance between the centers of neighboring dots arranged along said second direction of said first correction pattern is different from a distance between the centers of neighboring dots arranged along said second direction of said second correction pattern" is noted. However, this argument is not found persuasive since Fujimori teaches printing of first sized dots in the first pattern and second sized dots in the second pattern, wherein the dots of each pattern are printed so as to be adjoining when aligned. Since the dots are different sizes and adjoining, they are separated by different distances.

It is also further noted that apparatus claims 12-18 are directed towards a printing apparatus. As such, the limitations of the pattern printed do not limit the structure of the printing apparatus since the correction pattern is not a part of the printing apparatus. Also, limitations of the pattern do not limit the printing apparatus since the material or article worked upon by an apparatus does not further limit the structure of the apparatus (see MPEP 2115). Additionally, the language regarding the pattern is merely directed towards the intended use of the device which is given little weight since it does not appear to limit the structure of the device.

***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julian D. Huffman whose telephone number is (571) 272-2147. The examiner can normally be reached on 9:30a.m.-6:00p.m. Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Julian D. Huffman  
21 September 2005